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AND

PRACTICAL FARMER

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BOSTON, AUGUST, 1836.

(From the Northampton Courier.)

Extract from Gen. Tallmadge's Correspondence.

CULTIVATION OF SILK, &c. IN FRANCE.

PARIS, April 9, 1836.

"I have had the pleasure to attend, by invitation, at two meetings of the National Institute of France. It is a noble assemblage of scientific men, and a source of continual benefit to the public weal. A small sum, about 200 dollars, is allowed by the government to each member for his attendance at the weekly meetings, and for which the Institute returns answers to the government when required, upon questions connected with the arts and sciences, including agriculture, manufactures and the kindred branches. I have also attended a meeting of the Agricultural Society, and was present at the awarding of the premiums for the services of the last year, and found it not only interesting, but a fund of useful information. I send you their *Programme* of their proceedings, as also of the subjects and prizes offered for the next year. This paper will afford useful suggestions to the American Institute.

The public institutions of France are open and accessible to strangers, and are a matter of just pride to the nation. The specimens in mechanics are curious and useful. There is a *Swede* here, now a denizen of France, who claims to have made an essential improvement upon the steam engine. His proposition is to dispense with the steam boiler, fire and its attendant fixtures, and to adapt to a common high pressure engine, the use of *ammoniacal gas* as an efficient power. It is alleged that this gas can be prepared in reservoirs, so as to come in place of fuel, at a cheaper rate, with an exemption of all danger of explosion, and a great saving of the space for the engine and its fixtures. It is insisted there will be a saving of at least one half in expense, as well as in space. He has shown me his model. He has obtained a patent for England, and also for France, and he intends to sail in a few weeks for New York, with a view to obtain a like patent in our country.

Many questions of interest under our patent laws have been propounded to me here, and, among other things, it is noticed that while England and France open their patent privileges to all the world, America limits hers to her citizens, or to *resident aliens intending to become citizens.*

I have visited the anatomical museums and medical establishments, and attended operations at the hospitals. Very many opportunities are offered to medical students; and when we cast a look, in comparison, to New York, who will not breathe a sigh, that bad organization and personal feuds, should have so long prevented a like growing institution in our city, where I insist there is equal talent and more enterprise. We have heard so much *pro and con* in relation to Monsieur Seviale's new process of Lithotomy, that I have made his acquaintance and witnessed his operations on both male and female patients. The stone was successively broken and extracted, and the patients arose and walked away almost uninjured. The operation is not often very severe or painful. I have full confidence in his improved plan, and his instruments, if they are not abused in conceited or unskilful hands. I was gratified to find among the spectators two or three medical young men from our country.

I send you a report of M. Bodin on the agriculture of France. These papers demonstrate the great interest felt in France in the improvement of its agriculture; and it appears to be increasing in its general prosperity. It is often said, that the husband with his vineyard, and the wife with the silkworms, are at present the best sources of na-

tional wealth. Much pains are taken to improve the culture of silk; it has hitherto been carried on almost entirely in Italy and principally in France, by private and individual industry, and supposed to be unskilfully and imperfectly conducted. The government have established three model farms, for the purpose of various experiments in agriculture, and especially in silk. I have been in the interior to visit one of those farms, and was permitted to examine its details. A separate house is prepared for feeding the silk worms, which is heated by a furnace, its heat regulated by a thermometer, and its ventilation attended to with care and system. M. Beauvais, its director, states, that 1 oz. of eggs will produce in India 20 lbs. of silk; in Italy, 5 to 6 lbs. do.; in France, 5 lbs. That this great difference of product arises from care and skill and treatment. That he has last year, in his expériments, increased the product up to thirteen pounds, and is confident of a greater increase this year. He thinks a dry and cool climate is best, and that the room should be made equal in temperature by heat and ventilation. I have observed with care his model fixtures as to the frames, heat and ventilation.—The worms are here fed by leaves, put on a net suited to the frames, and which is to be laid over them: the worms soon ascend to the new leaves, and can then be removed on the net and the frame cleaned. When the leaves of different kinds of mulberry are mixed together, the worms will select and gather on the *Chinese* mulberry, and yet it is not a settled point here in what consists the superiority of the Chinese over the other kinds of mulberry. The model plantation of trees is planted in rows of 12 feet apart. The trees are six feet apart, in the rows, and are cut down so as to have four or six sprouts from near the ground, and these in after years are cut off so as to be kept dwarfed for use in picking the leaves. It is believed an acre or two, thus allotted to trees, and near the house, will give such facilities and product, as to make the best result, and so it appears to me. The Chinese mulberry will sprout from cuttings about six inches long, and set in a row four inches distant. I have visited one garden where 50,000 are just set out in this manner, and where 20,000 were thus raised last year, and have been sold, and, as is said, to the American market. The French farmers have no aptitude to change, and comparatively few Chinese mulberries are set out in France. If the nurserymen are to be credited, they have sold, this last year, one hundred trees for America for ten transplanted here. From my own observation I believe it to be the case.

M. Beauvais has tried, with profit a room heated to 18 and 20 degrees (Reaumur) and says 28 and 30 is used in India. M. Beauvais and several other growers of silk, whom I had seen in the country, have since visited me at my rooms in this city, and have communicated freely with me. There is often discrepancy in their statements and opinions, and their allegations will only serve as clues to enquiry; but I trust the safe common sense and keen observation of our people will soon understand, as a science, the growing of silk much better than Europeans, who, after the experience of ages, act more from usage and habit than skill and experience. I have entire confidence in the full success of our people in the culture of silk. Most of the gentlemen I have alluded to, have agreed in the opinion that a warm climate is not so good as a regulated room; and one of the gentlemen, of experience, says he constantly uses plates with *chlorine* in the room to purify the atmosphere, and without injury to the worms. Some doubt establishments for feeding the worms, and prefer private industry in family rooms. All agree that a damp climate is injurious, and therefore say that silk does not prosper near the ocean, where the damp westerly winds prevail;—and they express an opinion that our warm and dry summer climate is admirably fitted for the business of silk in families as well as in Establishments. France is found to produce not more than one half the silk she manufactures; it is purchased from Italy and the Archipelago.—Her thirtythree millions of inhabitants cannot afford space sufficient for the mulberry trees to supply her own wants. Our country is exempt from this difficulty. Various books or manuals of instruction in the culture of silk, have been published here for the use of families. I have collected them, and shall endeavor to bring them with me for the library of the Institute. I must omit further details till an opportunity for personal explanation.

CHINESE MULBERRY,

The time having arrived for laying down the Chinese Mulberry, the following extract of a letter dated Sept. 1835, from a gentleman who is practically acquainted with the business, may be of use to new beginners:

The manner of putting down the mulberry and covering the branches with earth, is bad, decidedly bad. Many of them rotted, some wholly and some in part only. I put them down in various ways—some I put down with the tops out—some with the tops covered, and some I broke off—the last did the best. Now the way to do the thing as it should be done, is this—I know by experience, and one grain of experience is worth a pound of speculation.

Bend the shoot flat to the ground, nip off the tip or top, mind that—secure it with forked sticks and do not put any earth upon the branch, (except

where the buds have just started.) The buds will shoot upwards with great rapidity, and when about one inch high, then cover the stalk lightly with earth, and the fibrous roots will immediately shoot downward, in every direction—this I know. In this way, there is not the least danger of smothering the plants or buds.

Remember, the top must be nipped off, or the plant will grow from that end only, and the buds will not grow so well. I have found that covering the plant or branch with the earth, when first laid down, is a great error, at least I think so, with all due deference to your better judgment and experience.—*Courier.*

Silk Worms are feeding now and some of them winding their cocoons. The ordinary method is to lay branches over the worms or set broom brush upright and they will find a position to their own taste. After they have finished winding, those cocoons to be used for reeling must be boiled in hot water a few hours or laid in the sun three or four days, as the moths will come out in about ten days, if not destroyed, and spoil the cocoon. Those cocoons which are intended for seed, should be of the largest size and bright color and firm to the touch. They should be laid away carefully, and in ten or fifteen days, according to the weather, the moths will come out. The male is known by his small size and the continual fluttering of his wings. The female is larger and seldom moves. They should be taken in pairs and put upon sheets of paper and in about twentyfour hours, the female lays three or four hundred eggs. They should be laid away carefully, rolled up, as they adhere to the paper. The moths die soon after the eggs are laid.—*Northampton Courier.*

(From the Northampton Courier.)

Extract from Gen. Tallmadge's Letters in Europe.

SILK AND MULBERRY TREES.

April 6, 1836.

In my last letter from Naples, I believe I promised to say something more on the cultivation of silk. I have since travelled through Italy, and especially in the silk districts, and also through France, and have visited many of the manufactories in both countries, endeavoring to learn the details of this subject, now so interesting, and, I think, so essential to our country. The limits of a letter, will, however, confine me to a few isolated remarks.

The weaving of silk, after it gets into skeins, is like any other weaving of like character; it is the production of silk and the habit of growing it, that must be acquired by our country; and it is, in this view, a mine of boundless wealth, not second even to the production of cotton. The country which so lately surprised Europe by sending eight bales of cotton to its market, and now astonishes the world with its countless thousands, may soon exhibit a like wonder in the production of silk.

In Calabria, which is in the south of Italy, the black mulberry is principally used. In the rest of Italy, the white mulberry, common to them and France, is principally used. The north of Italy, that is between the Alps and Appenines, produces the best and most silk. In this region, and especially in Sardinia, near Turin, and at Novi, the English and French are competitors in market, to purchase their silk as the best in the world; and yet on the 9th of March, the snow was one foot and a half deep, and the streets of Novi blocked up like our Cedar street! In Calabria, the silk is produced by the country people, in their families, and mostly reeled by them.—There are very few factories for reeling in the Neopolitan kingdom. In Lombardy, and towards Venice, there are also establishments for reeling, yet the greater part is reeled by the families, in detail, and brought to market in the skein. In Sardinia the cocoons are mostly reeled in establishments. At Novi their reeling establishments are numerous—I saw one, now erecting, which is a quadrangle two hundred feet square, and appropriated solely to reeling cocoons. They are purchased from up near Milan and many miles distant. This is admitted to be the best silk in the world. The red mulberry is here principally used, and is known as the Calabria mulberry. It is described as having a dark fruit; the tree is like our black; and when I called it black mulberry, I was corrected, and was told the stain of the fruit was red and not black, and which gave the character of the tree. The French, in addition to the white mulberry, have a dwarf white, much liked, and getting into use; but, it must be remembered, there is not in France, and scarcely in Italy, a fence, and they do not graze their fields as we do. With our habit of pasturage, the dwarf would be inadmissible. The Chinese mulberry is unknown in Italy. I found only a few young engrafted trees, but no experiments there, to be relied upon, to establish its superior utility.

In Italy, and in France, the mulberry is generally planted near the houses, along the road side, by division fences and often like an open orchard. The trees are formed like a middle sized apple tree. Its shade does not injure the land. The tree in Italy is usually made to sustain a grape vine and the field is cultivated for wheat and other crops. There is less discrimination here than you would imagine in the kind of mulberry. The

French have made experiments, especially on the Chinese; and the opinion seems to be, that the Chinese mulberry will bear to have its leaves picked twice off, and thus produce two crops of silk in one year. As yet, however, there is not much use made of the Chinese mulberry, and even here, the grower of silk cannot answer as to its virtues;—but the answer is often given to me, that, as to the quality and quantity of silk, it is the same as any other mulberry; and that the quality of the silk depends on the treatment of the worm, and the care and skill in reeling. They pay less attention to the kind of mulberry on which it is fed than we expect. They have also white, and use it. Habit directs more in Europe than with us, and therefore I urge that our people make experiments for themselves. They should neither take nor reject any thing too quick upon European experience. Climate and circumstances may produce a different result, and the alleged experiments of Europe may have been incorrectly and inadequately tried.

It is a peculiar and important circumstance in favor of the adaptation and fitness of our climate to the culture of silk, that, with us, the silk worm is produced at the beginning of warm weather, in May and June, by the natural temperature of the season, while in Europe, espectally in Italy and France, it is produced only by artificial temperature and means. The fact is a volume in promise of our country. Fires and a thermometer are not used in the south of Italy to secure an equal temperature in the rooms of the worms, nor much used in the north of Italy unless in the region of some snow-capped mountain, or where other circumstances produce sudden inequalities of temperature. It is the same as to the south and north of France.

The implements of husbandry, n either Italy or France, offer not much for the American farmer. Their lands are mostly cultivated with the spade and manual labor, and when the plough is used, it is the old fashioned plough on a pair of wheels. Their crops and their cultivation are so different from ours, that very little can be learned from them useful to us. Silk, wine and wheat, are their staple productions, and to an almost incredible extent: so it is in France, where the manner of cultivation, and implements of husbandry are much the same. Wheat is now so abundant in Italy and France, and the price so low, I found them the other day, at Marseilles, shipping wheat for the New York market! and they would do the same from all parts of Italy, but for their lack of commercial enterprise. Our farmers are now sheltered by a protecting duty, otherwise their crops would moulder in their barns; and even New York be furnished with bread from a foreign market. They have felt secure in their production, and have not regarded, as necessary to themselves, the system of protection for our domestic products. Should peace continue a few years longer in Europe, such is the surcharge of labor and power of production, that every product of American agriculture will find foreign competition, even in our own markets at home. The wheat, both in Italy and France, greatly surprised me;—the quantity is immense, and greatly beyond my belief till actual observation; and I have travelled eight or nine hundred miles in France, and have nowhere found sour, dark or imperfect bread. Can we do and say the same in our country? The bread of France certainly has a decided superiority over ours.

The agriculture of France is in fine condition, and second to that only of England. It has every abundance and the people appear prosperous and happy. The Olive is a valuable addition to the production of Italy and France. Our climate will not, perhaps, favor the tree, at least in the northern states; yet it is of so much value, it should be encouraged. The olive can successfully be engrafted on the ash tree, and thus, perhaps, it might be acclimated with us. Some such trees, engrafted on the ash, are said to be growing at Pistoia, about twenty miles from Florence.—There is no inducement in France or Italy, thus to engraft the olive, but the hint is certainly worthy the attention of our nurserymen and of our country.

Great efforts are made in France to advance the condition of its agriculture. It is ascertained that the increased use of the potatoe has diminished the consumption of wheat for bread. The raising of the beet root for the production of sugar, has, as one of its principal objects the supplying a new production for the benefit of the farmer. For the same reason the growing of madder is encouraged, and the production of the beet and madder come in great relief to agriculture, and are made new sources of public wealth. Our farmers certainly merit the like fostering care and assistance.

I have before mentioned the use of the natural current of the principal rivers and streams of the continent as a water power for manufacturing objects, and I have no doubt but the current in the East river at New York may be used for the same purposes. At Lyons, a water wheel is thus turned, and works a forcing pump, which drives up the water of the pier about three hundred feet to a reservoir in a public garden; it there forms a *jet d'eau* and falls into a marble basin, which serves as a fountain in case of fire, and its overflow washes the streets. It is attended and worked by one man, and might be recommended for adoption at New York.

PORK.

Mr Editor:—

I consider the ideas brought to view by your correspondents in No. 17, 18, and 23, of your first volume, at pages 131, 130, and 180, respecting the propriety of Farmers keeping more Swine, than is generally kept, so important to the agricultural interest, that I hope we Farmers shall look over their reasoning and remarks once more, at least. That they may be easily turned to, by those who have not the bound volume, I have named the numbers of the papers, and for those who have the volume I have noted the pages, where the several writers' ideas may be found; they urge the propriety of Farmers keeping more swine, first, because that any given quantity of pounds of *pork* can be raised at less expense than the same number of pounds of good *beef*, which I have no doubt of; secondly, because swine's manure is preferable to that of other animals, and that by placing in their reach thistles, mud, and oats, they make more, &c. &c.

But the writers seem to make their calculations on potatoes as much of the food of store swine. Experience has since shown that other equally valuable as potatoes, can be furnished them at less expense. Apples, and Ruta Baga, have been found as valuable, and double the number of bushels of the latter vegetable can generally be raised on a given quantity of land compared with potatoes, and no doubt they are worth as much bushel for bushel, for store swine, as potatoes, and a given quantity of land can be tilled, and the roots taken care of, at about the same expense, reckoning the cost of seed, &c. Again, if swine are kept in pens, or yards, clover grass mowed and thrown in green is good food for them, and if a farmer has a piece of land contiguous to his hog pen, this will be found a great saving of roots — but he may turn them out in a clover pasture several months in summer, and they will there grow, and thrive. This I should not advise unless it be in an orchard, or on land soon to be ploughed, because there would be some waste of manure. By keeping many swine is not meant to keep more than the farmer can keep without their suffering with hunger, and then they will be of fair size. When put up to fat let their food be cooked or soaked. Oats and peas will fatten them fast. I would not recommend giving them much Indian corn, or meal, made of it, but a little toward the close of the fattening, produces the hardest, and most palatable Pork. Clear pork is now from 25 to 30 dollars the barrel, in Boston, and generally in Maine. A farmer cannot go into a more profitable mode of making money, and certainly he may enrich his farm by it.

I would suggest, that it is never profitable to winter early pigs — they should be such as are farrowed in September, or the early part of October, kept warm in winter. Such will need but little expense in wintering, and they will make fine hogs the next fall; whereas early ones, cost very considerable the first summer, more in winter, and will be very little better the subsequent fall when slaughtered. Early pigs should always be killed the fall, or early part of the first winter, after they are farrowed; by some, they are thought to produce pork, at as little expense as any; I think otherwise, as they cost nearly as much in fattening, and large swine always bring most in the market.— *Maine Far.*

To cure the swelling of the throat in Hogs.— In order to contribute to the usefulness of your valuable periodical, and to inform the public what I find from experience to be an infallible cure for a certain disease in hogs, viz. the swelling of the throat, I herewith send you a receipt for the disease with a desire that you publish the same in your work if you deem it of any import and the same meets your approbation.

Take of molasses one half pint and a table spoon full of hogs' lard — to this add of brimstone a piece an inch in length. Melt it over the fire, and when cold or in a liquid state, drench the hog with it; and nine times out of ten it will be found to have the desired effect. My hogs were affected with this disease during the past year, and I found the above to be effective when all things else failed.— *Far. Reg.*

Note.— We have no doubt as to the efficacy of the above prescription, but the trouble of melting the brimstone can just as well be avoided, by substituting flower of sulphur for the roll brimstone, and we have no question that if a tea-spoonful of cayenne or black pepper were added, the prescription would prove much more prompt in its curative effects. The compound of molasses, hogs' lard and brimstone, can only act in their combined form as aperient and cooling; but if the cayenne should be added, a decided improvement so far as the swelling of the throat may be concerned, would be effected, it would then act as a stimulant upon the indurated glands of the throat, thus giving them resolution and enabling them to resume their wonted action, and take up the superabundant secretions, and thus restore a healthful condition to the affected parts.— *Editor of the Maine Farmer.*

A Mammoth Horse.— There is now at the stable of Capt. Thomas, of the Burlington Hotel, a horse, recently imported from England, 5 years old and well made that weighs 1750 lbs.— *Burlington Sentinel.*

BEET ROOT.

(Continued.)

As soon as the bottom of the evaporating vessel is covered with juice, the fire is kindled, and ebullition is produced as speedily as possible,—the juice which continues to flow from the clarifying boiler supplying the loss occasioned by evaporation.

When the boiling juice marks 5° or 6° (=1.036 to 1.044) of concentration, a portion of animal charcoal is thrown in, and this is continued, the quantity being gradually increased, till the juice is concentrated to 20° (=1.161.) Sixty pounds of charcoal are used in this manner, for a quantity of juice equal to from 422 to 475 gallons.

After having brought the liquor to the twentieth degree of concentration, the boiling is continued till the sirup marks 27 or 28° of the hydrometer, (=specific gravity of 1.231 to 1.242.) The sirup being mixed with animal charcoal, requires to be filtrated. This operation, as it is usually performed, is very tedious, and sometimes becomes impracticable; the consistency of the sirup is increased two or three degrees by cooling, and the pores of the filter becoming in a short time, obstructed by the finely divided charcoal, the thickened liquor can no longer pass through them.

To obviate these inconveniences I place a large willow basket over a boiler: into the basket I put a coarse bag of the same diameter, but about two feet deeper. I pour the thickened sirup into the bag; for some minutes filtration goes on very well, but as the liquor grows thick in consequence of its cooling, filtration slackens and at length stops; as soon as I perceive this, I turn the borders of the sack into the basket, and upon them place a wooden trencher, which I gradually load with cast iron weights till the necessary pressure is produced; filtration is by this means completed in two or three hours.

The charcoal contained in the sack is leached with warm water, and afterwards submitted to the lever press to force from it all the sirup contained in it. The waters used for these leachings during one day, are the next day mixed in the clarifying boiler with the juices that are then prepared.

The conversion of the juice into sirup should be done as speedily as possible; for when evaporation is slow the liquid becomes pasty, as part of the sugar is decomposed and passes to the state of molasses, and the difficulty of boiling is increased. It is necessary then that evaporation should be carried on with violent boiling, and for this reason the boilers made use of should be broad and shallow, so as to heat only layers of the liquor, and in order that ebullition may take place at once through the whole mass of the liquid; the furnaces likewise should be so built as to heat the boilers equally. The evaporation of 422 gallons should be completed in four hours.

The operation is known to be good and the juice to have been well prepared, when ebullition takes place without causing the liquor to swell and blister; when there appears on the surface only a brownish foam, the bubbles of which disappear immediately upon being pressed with a spoon, and when a dry sound is produced by striking upon the liquor.

If, on the contrary, there forms a whitish, gluey foam, which does not subside, the operation is bad; evaporation requires a long time and the boiling is difficult. In this case a little butter is, from time to time, thrown upon the surface to quiet the effervescence; the quantity of animal charcoal is increased, and the fire is checked. All these palliatives, however, do not correct the radical fault, and such appearances always presage bad results.

ON BOILING THE SIRUP.

The sirups prepared over night are the next day dried to extract the sugar from them.

The products of two operations upon 5000 beets are mixed together in a boiler, whence they are taken to form four successive dryings or boilings. One fourth part of these sirups is thrown into a round boiler, forty inches in diameter and twenty in depth; under this a fire is kindled; the liquor is made to boil, and the boiling continued till the operation is ended.

The process is judged to be going on well if the liquor exhibits the following symptoms.

1. When the sirup breaks short, and the bubbles upon returning into it produce a sensible sound.

2. When a dry sound, like that produced by striking silk, is returned from the surface of the sirup, when it is struck with a skimmer.

2. When the bubbles of foam disappear immediately upon being pressed with a spoon. The boiling is always perfect when the interior surface of the boiler is found, after the operation is ended, to retain no trace of blackness.

The sirup is known to be bad by the following signs:

1. When a thick, whitish, gluey foam appears upon the surface of the liquor.

2. When the liquor swells and foams, and does not subside.

3. When the escape of puffs of acid steam announces that the boiling substance is burnt.

The evils are palliated and the boiling terminated,

1. By removing the foam as fast as it forms.

2. By throwing into the substance small pieces of butter.

3. By stirring the liquor with a large spatula.
4. By mixing with it a little animal charcoal.
5. By moderating the heat.

To avoid a portion of these evils, I throw a flood of sirup into the boiler, and remove the whitish foam that arises; I stir the sirup strongly three or four times before boiling commences, and skim it each time. The scum that is removed is thrown into a bucket with that which is produced during all the time that the liquor is boiling; these skimmings are afterwards subjected to the lever press, and the remainder washed, to obtain from it all the juice contained in it. The sirup obtained by pressing upon one day is added to the liquor that is boiled the next, and the water of the leaching is thrown into the evaporating boiler.

When the syrup in the drying vessel shows itself to be bad, especially when it gives out puffs of sharp steam, which declare the substance to be burnt, it is necessary to arrest the process and to treat the sirup with an additional portion of animal charcoal. In this case the liquor is diluted with water till it falls to 18 or 20° of concentration, (=specific gravity of 1.143 to 1.161,) and then the charcoal is added; after which ebullition is renewed till the sirup rises to 28°, (=1.242,) when it is filtered and dried. I have found this to be the only way in which I could restore a sirup which had been injured in the process.

I have myself made particular observations upon the thick, whitish, unctuous and paste-like substance, which is almost always found upon the sirup, and which, when it is abundant, prevents the drying from being well terminated. This substance renders the sirup ropy, adheres to the sides of the boiler, which are blackened by it, separates itself from the sirup, in proportion to its concentration, and prevents the object proposed from being attained.

I have noticed that the quantity of this substance was in proportion to the germination of the roots, and that it was increased by the incomplete purification of the sirup, and also by a slow evaporation. Animal charcoal produces an astonishing effect in lessening the quantity of it; sometimes, if well employed, the formation of it is prevented, or that which is produced is made to disappear.

This substance, which during the first years of my establishment, I often collected in large quantities, is thickened and hardened by cold; it is insoluble in water or alcohol: it burns with a white and inodorous flame; and possesses all the characteristics of vegetable wax, from which it is in no wise different.

The drying is ended when the boiling sirup marks 44 or 45°, (= specific gravity of 1.440 to 1.454.) The time for removing the sirup from the boiler may be known by the following signs.

1. Plunge a skimmer into the boiling sirup, and upon withdrawing it pass the thumb of the right hand over its surface; mould the sirup which adheres to the thumb between that and the fore finger, till the temperature be the same as that of the skin; then separate the thumb and finger suddenly; if the boiling be not completed, no thread will be formed between the two; if there be a filament, the boiling is well advanced; and the process is completed as soon as the filament breaks short, and the upper part, having the semi-transparency of horn, curls itself into a spiral. This manner of trying the sirup is known by the name *proving*.

2. The second mode of judging of the completion of the process, is by observing the time when the sirup ceases to moisten the sides of the boiler, and then blowing forcibly into a skimmer which has just been immersed in it; if bubbles escape through the holes of the skimmer which ascend into the air in the same manner as soap bubbles do, the liquor is considered to be sufficiently boiled; the fire is therefore immediately extinguished, and the sirup in a few minutes after conveyed to a great copper boiler, which is called the *cooler*.

The cooler is placed in an apartment of the manufactory near the boilers; its capacity should be such as to allow of its receiving the product of the four successive boilings. The cooling which the sirup experiences in this vessel, quickly produces crystallization; the crystals form first at the bottom, where they collect in a thick bed, having however no union of particles. Gradually the sides become covered with solid crystals, and at length there is formed upon the surface a crust of sugar which thickens insensibly. At this time the contents of the cooler are taken out to fill the moulds in which the process of crystallization is to be completed.

The moulds used in this operation are known in refineries by the name of *grandes batardes*. They are large conical vessels of baked earth, with a small opening at the apex, and capable of containing about 100 pounds of the evaporated sirup. The different sizes are distinguished in the manufactories as *grandes* et *petites batardes*, according to their different capacities; they are numbered 1, 2, 3, 4, &c. Moulds made of resinous wood have supplied the place of these in some manufactories; this change was proposed by M. Mathieu de Dombasle, and in those countries where wood is abundant, it is a good one in point of economy.

The moulds must be soaked in water and then drained, before the sirup is put into them; the opening at the point is stopped with old linen, and the vessels themselves supported against the walls to receive the liquor.

The contents of the cooler are first thoroughly

stirred and mixed, and then thrown gradually into the moulds, a portion being put into each in turn, so as to fill them all equally: an interval of an inch is left between the surface of the sirup and the top of the mould.

Crystallization is hastened by carrying the moulds, as soon as they are full, into the coolest apartment of the manufactory.

The sirup arising from the employment of 10,000 pounds of beet roots, if the operations are well conducted, will fill nine *grandes batardes*, each *batarde* containing from 85 to 90 pounds of evaporated sirup.

When the different boilings are made slowly, or experience any interruption, the moulds are partially filled from the cooler, without waiting for the last product; otherwise crystallization would be completed in the cooler, and all the contents of it would form a mass which could not be poured into the moulds to extract from it the molasses.

Cooling causes the formation of crystals upon the sides of the moulds and the surface of the liquor. As soon as this crust of crystals has acquired some degree of consistency, it must be broken with a wooden spatula, and the whole contents of the mould carefully stirred, so as to collect in the centre the crystals that have formed upon the sides. When this has been done the crystallization is allowed to go on undisturbed.

Three days are more than enough for the formation of all the crystals.

The operation may be known to be good,—

1. When the surface of the crystallized mass is dry, so that in passing the hand over it neither moisture nor adhesiveness is perceived.

2. When the crust settles and breaks in the centre: in this case the refiners say the sugar *makes a fountain.*

3. The yellow color of the crystal is generally a good indication, but in this case of beet sugar it is unimportant, because the color may have been blackened by the animal charcoal employed when the filtration of the clarified liquor has not been carefully executed; and this color is easily made to disappear by clarification and refinement.

The plugs that close the points of the moulds are then taken out, and the moulds are placed in earthen pots, that the molasses may flow from them. These pots should be large enough to contain five or six galls. of liquor.

The crystals will be deprived of the molasses which unites them in about eight days; the moulds are then carried into an apartment which, by means of a stove, is kept constantly heated to 18 or 20° of Reaumer, (=72.5° and 77° Fahr.) and there placed in fresh pots.

The next operation is that of leaching the contents of the moulds, in order to obtain from them that portion of molasses which refused to flow out. For this purpose the surface of the loaves is carefully broken and scraped with a blade of a knife, so as to smooth it, and then there is thrown upon each one about half a pound of a white sirup, marking from 27 to 30° (=specific gravity of 1.231 to 1.261.) This sirup is only a portion of that which is prepared for boiling.

This sirup penetrates into the loaves, diluting and carrying off the molasses, which is three or four degrees more concentrated than itself. If the concentration of the sirup were less, it would dissolve the sugar; if it were more, it would render the sugar adhesive. This operation is renewed two or three times at intervals of two days.

When the loaves have remained a month in the stove-room, they can be taken out of the moulds; they are then found to be dry and entirely deprived of molasses, and are piled up in the storehouse, where they are kept to be refined.

ON BOILING THE MOLASSES AND LEACHING SIRUPS

I mix the molasses obtained from the brown sugar with the sirups which have been filtrated through the loaves, and proceed to boil the mixture. The molasses marks 22 or 24°, (=1.171 to 1.180,) and the mixture 22 or 23°, 1.180 to 1.190.) I throw from 32 to 35 gallons of this mixture into the boiler, and when the heat approaches to ebullition, I add about one pound of animal charcoal which I mix carefully with the liquor.

The boiling of this liquor is more difficult than that of the sirup which produces the brown sugar, but with care and patience it may be done to very good advantage. This liquor yields at least one sixth of the quantity of sugar that has been produced by the first operation; this product is sufficiently important to render it advisable to boil down the molasses, instead of disposing of it, as is almost everywhere done, for distillation.

If the molasses procured from beets was of the same quality as that obtained from the sugar cane, it could be sold with advantage, but it has a bitter taste which renders it unsaleable; it is then best to exhaust it of crystallizable matter, and to subject the remainder to distillation. The difference in the quantity of alcohol obtained from the two kinds of molasses is almost nothng.

Instead of depositing the product of this last boiling in moulds, I throw it, from day to day, into a hogshead open at one end, and thus gradually fill the cask; the sugar crystallizes wonderfully in these vessels, so that they become half full of it.

When this sugar, which I call molasses sugar, to distinguish it from brown sugar of the first boiling is to be refined, the molasses which lies on the top is dipped out, and the rest is made to flow

out through small gimlet holes bored in the bottom and around the circumference of the cask.

The sugar when deprived of all the molasses which can be made to flow from it, still forms only an adhesive paste which can scarcely be refined; I therefore put this paste into bags of coarse, strong cloth, and subject it to a strong compression. The sugar thus freed from molasses is very dark colored, but the quality of it is excellent, and it is as easily refined as the best brown sugar.

When the brown sugar boilings turn badly, and crystallization in the mould is imperfect, and, in a word, at all times when sugar is ropy and parts but imperfectly with its molasses, it is necessary to subject it to the action of the press before attempting to refine it; as soon as it has in this way been freed from all its molasses, it may be refined without any difficulty.

In most of the beet-sugar manufactories they have adopted the swinging boilers for preparing their sirups; concentration is performed speedily in these, and they have the advantage of being emptied in a moment; but they are useful only when the operation is performed upon dry sugars, like the American, which contains but little molasses. Our beet-sugar is never so well drained as the imported sugars are, and requires much more care in the boiling. These boilers appear to me more apt to cause the burning of the sugar than the old kind, and I therefore give the preference to the latter.

ON THE REFINING OF SUGAR OBTAINED FROM BEET ROOTS.

When the sugar is dry, the refining of it is easily performed; all possible pains then should be taken in the preceding operations to free it from all its molasses.

All the operation of refining may be brought under two heads, clarification in the boiler, and whitening in the moulds.

To refine sugar well, it is better not to operate upon too large quantities. I have always observed, that when I subjected to the same boiling process 2000 or 3000 lbs. of sugar, the last boilings were ropy, and each operation less perfect than when performed upon 400 kilogrammes (about 890 lbs.) at one time; it is upon this last quantity that I shall found my calculations.

I have never been able to assign a reason for this difference, but it actually exists; perhaps it arises from my not being able to complete my boilings in one day, and the clarified sirups have become changed in the boiler; or perhaps a large quantity of sirup may be more difficult to manage than a small one, though the ingredients be combined in the same proportions.

ON CLARIFICATION.

A boiler four or five feet in diameter and twenty-eight inches in depth, is two thirds filled with water, to which lime-water enough to fill the boiler is added; in this mixture is dissolved at a low heat 400 kilogrammes of brown sugar.

The solution must not mark more than 32° (=1.286) of concentration; if it stands higher, it must be weakened, if lower, more sugar must be added. This state of concentration belongs only to solutions of dry sugar; those of damp sugar must be reduced to 30 or 25° (=1.261 to 1.210,) otherwise it will be almost impossible to filtrate them.

The solution is then heated to ebullition. When the temperature reaches 65° (=178¼° Fahr.) fifteen kilogrammes (32¾ lbs.) of animal charcoal are added to it; the mixture is then carefully stirred and mixed with a wooden spatula; after allowing it to boil an hour, the fire is extinguished.

The quantity of animal charcoal added ought to vary according to the quality of the sugar, that which is dry requiring a less portion than that which is wet.

The boiling liquor is freed from the charcoal by filtration through a course cloth and when the heat has fallen to 40° (122° Fahr.) the whites of forty eggs beaten and diluted with several quarts of water are thrown into the boiler. The liquor is then carefully stirred, and is kept constantly in motion till the temperature rises to 70° (=180° Fahr.,) when stirring is omitted and the heat raised to the boiling point.

As soon as the first bubble appears upon the surface, the fire is extinguished; a thick coat of scum forms upon the surface of the liquor, and is removed at the end of three quarters of an hour.

The liquor is filtered through a coarse, thick, rough cloth; if the first portion that passes through be not perfectly clear, it is to be thrown again upon the filter, and this operation is repeated till the liquor appears completely limpid and free from any floating particles. As soon as the liquor is perfectly clear, it is boiled; five or six boilings being formed with the product of the clarification.

The several boilings are thrown into the cooler as fast as they are completed, and from thence into the moulds *four*, which can contain 5¼ gallons each. These operations are conducted in the same manner as those which I have described in speaking of brown sugar, but with this difference, that the sugar contained in the moulds is stirred and moved at two different times before it is taken in the mass.

After three days the moulds are placed upon the pots into which the molasses drains, and at the end of eight more, they are removed to the second pots where the whitening is to be performed.

GLEANINGS IN HUSBANDRY.

BY THE EDITOR.

Agricultural knowledge may be adapted to different climates and circumstances. "However different be the natural production of countries, and however necessary it be that the farmer adapt his operations to these differences, yet there are rules and maxims in the art common to the husbandry of all countries; and he who is thoroughly acquainted with one good system of practice applicable to any one situation of the farmer, has the means by an easy analogy, of applying his knowledge to other and similar cases. A person thoroughly trained to practice on the banks of the Tweed would make a good farmer on the banks of the Po or the Ohio. He has received the kind of instruction which is useful under all circumstances, under which they can be applied."—*Professor Row.*

Potatoes for Sheep.—"Gen. Murray uses potatoes for fattening sheep as well as for lean stock. He has now 196 fat wethers, that eat very near 14 bushels of potatoes and 100 weight of hay *per diem;* it may be reckoned 14 bushels for 200 Sheep. If they have as many potatoes as they will eat, they do not require more than half a pound of hay each per diem.— *Young's Annals, Vol. II. p.* 285.

It will be proper in feeding cattle with potatoes, or other roots to give them but a small quantity at first, increasing it by degrees as they become accustomed to that sort of food. It will be better to give a little every day than large messes, once in three or four days or a week.— *Vol. II. p.* 57.

Fattening Hogs.— If your object is merely in fattening swine it will be advisable to take time for the process. A farmer, stating the result of some experiments in the Bath Society papers, Vol. VI. p. 382, says: "I invariably found that the quantity of food consumed (by fatting hogs,) increased every week, till the animals became three parts fat; after this period they ate but little, and almost all they eat turned to fat. It is, therefore, good policy to make them completely fat, and that can only be done, by giving time."

Lynch law among Swine.— It is said that hogs thrive best when there are but three or four in the same apartment or pen. They are fond of society, but exhibit the vilest propensities of a "swinish multitude" and become very riotous if congregated in a large assembly. As they know no law but Lynch law, and acknowledge no right but that of the strongest, they sometimes condemn a weaker brother in a popular assembly, and proceed to execute him without Judge or Jury. The stye, therefore, should have a number of apartments separated by close partitions, and there may be a general feeding trough to which each division of animals may have separate access.

Salt hay has usually been hurt by lying too long in the swaths. Dr. Dean directs to cock it the next day after it is cut, and carry it in, without delaying more than one day, and put a layer of some kind of dry straw between load and load of it in the mow, to prevent its taking damage by over heating. The straw contracts so much of its moisture and saltness, that the cattle eat it very freely, and the hay is far better than that made in the common way.

Water Plants.— Water is apparently the medium by which all the matter of nutrition, in whatever form is conveyed into the roots of plants, and without which, accordingly, vegetation is never known to take place.— *Low's Elements of Agriculture.*

Seaweed for Manure.— Seaweed consisting of different species of Fucus and other marine plants, is greatly used upon the sea coasts of Great Britain and Ireland as a manure. It is very transient in its effects; but is nevertheless of much value in situations where it can be obtained. The most common method of using it, is to convey it directly to the land, and apply it fresh as a top dressing to the growing crops. If left in a heap by itself its more soluble parts are exhaled, and a dry fibrous matter alone remains. If it is not applied, therefore, in its recent state, it should be formed into a compost with dung, or with a mixture of dung and earth.

Seaweed is chiefly valuable for light and dry soils. It is of less comparative value for the stiffer clays; and hence when a farm has access to it, it is better to apply the seaweed to the lighter, and the dung to the stifler soils on the farm.— *Ib.*

Peat.— Peat is a substance which may be used as a manure, but unless freed of its acid principle it may remain for years exposed to water and air without undergoing decomposition, in which state it can afford no nourishment to plants. Pure peat, should, therefore, be made to undergo decomposition before it is applied to the soil. This may be done by long exposure to the air, or by mixing it with quick lime, which decomposes its woody fibre, and forms a kind of compost which, however, is not greatly valued.

Soft Beds.— Children and youth who are accustomed to sleep on soft or feather beds during the warm season require more than ordinary force of constitution not to be injured by it. The hair matrass is best adapted both for summer and winter.— It is thought that feather beds tend to induce consumption.

FARMER B. OR THE MAN WHO WORKS IT RIGHT.

BY A TRAVELLER.

It was during the same tour in which I met with Farmer A. whose system and its results I have given in a former number of this journal, that I made an acquaintance with another individual who I shall call farmer B. and if I could convey to the readers of the Farmer, but a small degree of the pleasure, which a sight of what industry and good order can accomplish, has afforded me in the remembrance of the incidents I should feel myself amply rewarded.

Mr B. as well as Mr A. was a native of one of the eastern states, and when he removed to western New York, he took care to secure a farm containing as many natural advantages as possible, though in this respect I think his farm was inferior to farmer A. When he had made his choice however, he considered it as made for life, and immediately set himself at work to effect a thorough and permanent arrangement of his premises, previous to the course of improvement he intended to adopt. A large farm and great wealth formed no part of his plans — a farm of ordinary size, contentment and competence, were the extent of his ambition, and these things he speedily accomplished.

Farmer B.'s house is one of the most perfect specimens of that picture of rural neatness, elegance and comfort, an English cottage, that I have seen in this country. Standing at a little distance from the public highway, unassuming in its altitude dimensions, embowered in trees, and half hidden in vines and shrubbery, it seems as you approach it the chosen retreat of farming taste and comfort. The neatly painted pickets of the different enclosures were as firm and perfect as if put on but yesterday. The gates to the different avenues were ready for use without creaking or grating. The avenues themselves were well graveled, hard and clean — the grass was cut close, and free from all dirt or rubbish, and it was evident the work done here had not been injuriously abstracted from labor required elsewhere; every thing had been done in order and in time, and a glance showed that the whole secret consisted in these two words — good management.

On entering the house, as might have been expected, the same order and neatness was found pervading every spot. Mrs B. was a middle aged, sensible woman, a good farmer's wife, without the least effort at display or ostentation, but greeting the stranger with a welcome and frankness that gave additional value to whatever obligation she conferred. Two daughters, the one eight, and the other perhaps fifteen, with their mother, constituted the female part of the family. I know of no sight on earth to me more pleasing, or so conducive of delightful emotions, as a beautiful little girl, such as the playful Mary B. They are the rose buds of human nature,— pure themselves, and ignorant of wrong in others, they only delight in seeing others happy,— overflowing with affection which they have not yet learned to hoard for a single favored individual, and unacquainted with those deeper and mysterious influences which startle the young girl, and mantle her cheek with blushes, when she first acknowledges their existence and power: there is a fearlessness and frankness about the innocent creatures, difficult to retain in after life, but which, when combined with purity of heart, forms the great charm of female character.

Farmer B. was at home when I arrived, and as we walked over his well managed farm, he seemed to feel a rational pleasure in recounting the steps by which he had brought it to such a state of fertility and productiveness, and of which ample proof was found in the fact, that he had that day received six hundred dollars for a crop of wheat grown on twenty acres. Two of his oldest sons were at work in the field, the youngest being at school; Mr B. remarking, that as he intended his children for farmers, or the wives of farmers, they were kept at school until they were able to aid in the business of the farm, the girls by assisting their mother, and the boys in the field, when the summer schooling was discontinued, but resumed in the winter, or at an academy, as long as was desirable — it being his opinion, that a due regard to health, and an ample acquaintance with the operations of husbandry, demanded that course. Mr B. said he was a strict utilitarian, and while he admitted as useful to his children, and required in their course of studies, much that others would consider as unnecessary, he would not allow them to consume their time upon courses purely ornamental, and for which in all probability they would find little or no use in their after sphere of active life. Farmer B. was not a visionary or enthusiast in farming; but he loved experiment, and never rejected a proposition because it was new — it was enough that it commended itself to his reason, and was able to bear the close and rigid scrutiny to which he was accustomed to submit all farming speculations.

There are few passages in life more delightful than an evening spent in such a family. Intelligent, amiable, and unaffected in their manners, their cheerful courtesy makes one feel at home, and places him at once on one of those green islands that are here and there found in the needlessly broad desert of human life. In the room to which we were introduced for the evening, were a fire, lamps, sofa, carpet, chairs, and what I particularly noticed, a table on which lay one or two of the latest newspapers, a magazine or review,

and an agricultural journal of established celebrity. There was an assortment of books, not large, but well selected, consisting of voyages, travels, history, and a number of theological volumes, with one of the popular commentators on the Bible. The family were soon grouped around, and all, even to little Mary, were busy, the boys with their books, the girls with their sewing.

"You will excuse us," said Mr B. to me, "but we have in our family long since adopted a practice which we do not like to relinquish: for one hour in the evening, after the usual labors of the day are closed, some one of us, and we intend to do it in rotation, reads aloud for the benefit of the others, and as we have just received a work more than usually interesting, my children would feel deprived of a privilege were this custom omitted this evening." I of course begged I might not be a hindrance to their happiness, and young Mellen, the second son, a lad of sixteen, was called upon to read. John Neal, I remember, says that he knew of but three good readers in the United States, and spite of his modesty, I presume he would include nimself in that number; certain it is, the number is but few who enter into the spirit of an author, and understand giving his words and sentiments their proper value and effect. Mellen however, far exceeded my expect tions, and when he named Lamartine's Pilgrimage to the Holy Land, as the work they were reading, I was not surprised they were anxious for its continuation; and when the hour had expired, so deeply interested had we all become in the narration of the eloquent Frenchman, that by an unanimous vote, the book was handed to the eldest daughter, and another hour glided quickly away in listening to her sweet toned voice, and the glowing thoughts of the poetic writer. After what I had seen and heard, I was not surprised to find Mr B. a man of deep religious feeling, or disposed to wonder at the profound feeling of humility and thankfulness with which he closed the evening by commending us all to the care of a beneficent Creator.

After the children had retired, I could not help congratulating Mr B. on the excellent course he had adopted in the family of accumulating knowledge, and the beautiful effect its influence already exercised. It is said, he remarked in reply, that farmers, or their children, do not have as much time to read as the children of professional men or mechanics, and it may be partly true, yet I am convinced the plea which farmers so often urge as an excuse for their ignorance, that they have no time to read, arises more frequently from disinclination to read, than from any other cause. Few men are sensible how many valuable books are gone through in a year by the reading of an hour a day; and by having them read aloud in the family, all are interested, and all are instructed. As I have accustomed my children to ask questions on what is read, and to the correcting of errors in the reading, the attention even of the youngest rarely flags during the hour.

I went to bed reflecting on the contrast between farmers A. and B. and the different probable results their influence and that of their families would have on their own happiness, and that of the society around them. With farmer A. everything was at sevens and sixes; nothing in doors or out, in the house or on the farm, as it should be, or as it ought to have been; and this state of things evidently had its effects on the minds of the family, rendering them morose, ill-tempered, I may almost say, immoral; as well as continually restless and dissatisfied with everything around them, without inducing the necessary steps to cure the evils of which they were so ready to complain. On the contrary, at farmer B.'s every thing moved like clock-work, and it was evident the success as a farmer arose from having his work done in season, and from "having a place for everything and everything in its place." Its effects on the family we have seen, and one thing is certain — Mr B. will not go to the west in search of competence or happiness.— *Gen. Far.*

Crops in Indiana.— We are glad fo learn from the Madison (Indiana) Banner, of the 27th ult. that the favorable accounts heretofore had of that region are fully confirmed. The Banner states upon the strength of late information from all parts of that State, that the prospect for the crops was highly favorable, and the promise certain of an abundant reward for the toil and labor of the farmer. The Richmond (Indiana,) Palladium of the 16th ult. thus confirms what is said by the Banner: —"We are now in the midst of harvest, and seldom has nature yielded a more bounteous return for the labor of the husbandman in this country."—*Lancaster Herald.*

Hay.— The crop of hay comes in quite abundant this year. On account of the weather the farmers have not been able to get their hay as early as usual, and much of it has remained until it is considerably dead; consequently the crop growen will not be so large. It is estimated, by a shrewd farmer, that the price of good hay here will range, this yea- from ten to fifteen dollars.— *Hampshire Gazette.*

Great Corn Crop.— Mr Calvin Wells of Whately, accidently planted one kernel of Indian Corn among his broom seed, this year, and reader, how many ears do you think are now to be counted on this solitary corn stalk. Why, *thirteen* exactly, yes, thirteen ears of Corn from one seed, reader. Now, what yankee, either here or in the "far west" can beat that.— *Northampton Cour.*

A TEAM OF COWS.

It would perhaps excite a smile, were a man seriously to propose a substitute of cows for oxen or horses in the labors of the field; and yet on examination the alternative might not, in many cases be found so unworthy of notice as at first supposed. Working cows is no new thing, and it is hardly possible, unless in certain cases the practice was decidedly advantageous, the custom would have continued so long. Samson accused the Philistines of ploughing with his heifer; an allusion without point unless the custom was common; and when the same enemies of Israel were compelled to restore the ark they had impiously carried off, the cows that were attached to the vehicle went lowing the whole distance. The practice of ploughing with cows is still common in most parts of the east, and in Africa; oxen being very rarely used for that purpose, and horses never. In the petty principalities of Germany, and in some parts of Switzerland, cow teams are generally used, the necessity of economizing labor, and the means of subsistence having clearly rendered such a course the most eligible. In the duchy of Nassau, for instance, one of the best cultivated and fruitful sections of Europe, according to the statements of the present Governor of Canada, the cow is used nearly altogether for the purpose of farming; and the picture he has given of these teams, driven by women, and conveying the produce of the country to market, as well as doing the other work of the farm, is lively, and well worthy of notice. It is true, a team of cows might not answer so well for our extensive wheat growers, or for breaking up the prairies of Michigan or Illinois; heavy oxen and strong horses will unquestionably continue to be found the best for these purposes; yet that by no means proves that there are not cases in which a heifer team would not be preferable. How many small farmers are there in our country, who cultivate but a few acres of land, and who of course require a team but a few days in a year, who might advantageously for these few days use their cows without injury. When we travel about the country, and find many farmers who think themselves unable to keep more than one cow, yet consider themselves obliged to maintain a span of poor half starved horses, to plough a few acres, or go to mill or to market, one cannot help comparing such farmers with the Nassau peasants, and reflecting, that as a cow can be kept at less expense than a horse, it would be far better for them to keep another cow or two, break them for a team, use them kindly and gently, and dismiss their worthless horses altogether. Cows in this case would be a double profit, for though experience, where they are used, proves that while they are used the quantity of milk secreted is less than when at liberty; yet when their use is over, under favorable circumstances, they soon recover what they had lost in milk, and go on as usual. With good keeping, a cow will pay for herself in a single year; would it not be better then to substitute such valuable animals, where it can be done without permanent injury to them, for the worthless skeleton carcasses, that caricature and degrade that noble animal the horse! Let some one then, who is superior to vulgar prejudices, fairly and carefully make the experiment; let him give the result to the public, remembering that the man who shall enable our farmers to dispense with the horse, by substituting cow labor for horse labor, will deserve the title of benefactor to the poor.—*Genesee Farmer.*

"WHAT FARMERS MAY BE."

Mr Holmes — Your interesting correspondent, "J. H. S." under the above title, in the last Farmer lays down three distinct propositions, showing in substance that farmers may be the most learned, and the most influential class of men in the world. Under each proposition he has adduced several good reasons in support of them, and I can most cheerfully assent to all that he has said upon the subject. But while I am so ready to give in my adhesion to his doctrine, I am inclined to think he will find it not an easy task to induce any considerable portion of them to carry out in *practice* what he has so correctly laid down in *theory*.

The occupation of a farmer certainly requires the "most vigorous exercise of the physical powers of the body," and if you can induce a man to adopt that system of labor, which shall render the exercise of these powers productive of the greatest amount of ultimate good, you can hardly expect to convince him, that he may become one of the most learned and influential men in the world.

If I may be permitted to advance an opinion, I will say that, judging from daily observation, it would seem that many believe the exercise of mental and physical powers have no connexion in the business of husbandry, that our fathers and grandfathers *thought* all that was necessary *to think* upon the subject, and that nothing remains for us to do but work, work, work, without even *thinking* that we have power to *think*.

Therefore, if we would lay a firm "basis on which to build up their minds in wisdom and knowledge," we must first convince them that the course pursued by our fathers and grandfathers in relation to husbandry, is by no means the best course.

Convince them that in general a small farm is better than a large one.

Convince them that a little well tilled, is better than much half tilled.

Convince them that two loads of manure is bet-

ter than one, and every load judiciously applied is better than a silver dollar.

Convince them that three good cows are better than half a dozen poor ones, and so of all other stock.

Convince them that raising their own bread stuff and a little to sell, is far better than "going to New York to mill."

Convince them that two blades of grass may easily be made to grow, where only one grew before.

Convince them that experiment is the mother of improvement, and improvement the true source of wealth.

Convince them of these simple TRUTHS, and induce them to practise accordingly, and the work is done.

You will then bring *mind* and *body* to act in unison. You will elevate the husbandman to his natural sphere in the scale of existence. You will place him in the road to higher eminence. He will *think* for himself, he will be learned, he will be wise, he will be wealthy and influential.— *Maine Farmer.*

CHILBLAINS.— This affection forms one of the most troublesome of the small troubles incident to cold weather. The cause of chilblains is generally to be traced to sudden transitions from heat to cold, or the reverse. Exposure to cold and wet united, and particularly immersion in snow water, are causes of chilblains. Accordingly, they do not always occur during the continuance of intense frost, but are often more troublesome when the temperature begins to be milder by a thaw. It was observed by the celebrated Larrey, in the winter campaign of the French in Russia and Poland, that but a few days before, and a few days after the battle of Wagram, the thermomet r was very low, from ten to fifteen degrees below zero ; and yet during that time there was no mortification, nor did any other particular suffering about the hands or feet occur. But about two days after the battle a thaw took place, the thermometer rose from ten to twenty degrees, and then a great number of cases of mortification of the feet occurred in the army, in some particular divisions that was much exposed, and nearly all the soldiers suffered more or less.

Chilblains occur most frequently in persons of feeble constitution and delicate skin. Hence they are common in females and in children.— Like many other evils they are more easily prevented than cured. The means of prevention are, first, such as go to diminish the susceptibility of the surface, and second, such as protect it from vicissitudes of temperature.— Among the first there is nothing better than cold water, and thorough friction with a coarse towel. Among the most popular remedies for chilblains may be mentioned a strong brine, vinegar, camphorated alcohol, oil of turpentine, and other articles of this class. I have lately seen recommended the tincture of iodine as a wash, which is said to bring the parts very soon to a healthy state. A solution of the chloride of lime, in the proportion of one part to twentyfour parts of water, has been found to answer a good purpose. Another wash which has produced excellent effects is prepared by adding one part of tincture of flies to six parts of liquid opodeldoc. With this the affected part should be frequently rubbed. When the skin has broken, and the part has assumed the character of a sore, regular medical aid treatment must be resorted to, as the matter then becomes too serious for quackery.— *Phil. Herald.*

GREAT PRODUCE OF A COW.— Sir — If you think the following statement of the produce of a cow worth inserting in your valuable Magazine, you can do it.

The cow is of the short horn Durham breed, a twin, her dam having had twins three times in four years; she is a bay, her sister pure white, now in possession of my neighbor Mrs Post. My cow calved on the 16th of March, her calf remained from her 19 days, raised on the skim milk, until my cow came in on the 20th of April. The produce of butter was in that time, say 35 days, 54 1-2 pounds, and two butchers, although not sold to kill, pronounced her the best and heaviest calf they had seen that season. I will only observe, I keep but two cows and they are kept and fed in the yard.

Yours respectfully, THOS. ASH.

The above remarkable account of the produce of a short horned cow is furnished us by Mr Ash of Westchester county. There are few such, either as a breeder of milker.— *N. Y. Far.*

CURE FOR THE RINGWORM.—Take the root of the common yellow or wild dock, wash it clean, bruise it, or cut it in very thin slices, put it into a cup, or other small vessel, and add vinegar sufficient to cover it. Let it stand by a day or two, then apply the mixture to the Ringworm, by rubbing it with a piece of the root, two or three time a day, for a few successive doys. This, it is said will effect an entire cure.

A single kernel of Rye which grew on the farm of Messrs Tisdale & Hewins, of Amherst, Me. produced 2286 kernels! It had 37 spears, each six feet high.—*Portland Advertiser.*

The editor of a Michigan paper acknowledges the receipt of a ripe, beautiful and fine flavored apple, measuring nine inches and five eighths circumference.

FARMERS' WORK.

BEETS, AND BEET SUGAR.— We have received very many and earnest solicitations, both from letters and verbal applications for plain practical information relative to the manufacture of sugar from the Beet. Not having had any experience in this manufacture we can do no more than select and refer to such authorities as give the intelligence solicited.

We have, accordingly, quoted from *Chaptal's Agricultural Chemistry*, and obtained from other sources particular and minute details, which we hope will prove useful as well as acceptable. It will, however, require not only science, but time and experience to bring this new art to such a degree of improvement as to render it advisable for a farmer, who is not in affluent circumstances to undertake to go largely into the manufacture. But every man, who owns half an acre of soil, proper for the purpose, may cultivate the Sugar Beet, with the hope of obtaining a very valuable product, whether he gains sugar from it or not.

With regard to the manufacture of sugar from the beet in this country, it presents a case in which delays are *not* dangerous. We should *look* ahead before we *go* ahead. We are pleased to learn that a patriotic society in Pennsylvania, with ample means to insure success has engaged in the concern, and the result of their labors and discoveries will be given to the public. In the mean time we can take a glimpse at the prospect, and be making preparation as good cultivators to aid the manufacturers of Beet Sugar with the material with which they must operate.

A writer in the Philadelphia National Gazette states that "the beets in this country, particularly the north part of Pennsylvania are most luxuriant. In France they yield per arpent, which is one tenth more than our acre, an average of 15 tons per acre. The White or Silesian Beet, ("Beta Alba") the Sugar Beet of France, has been raised within seven miles of Philadelphia, and produced much over this. Wm. Audenried, Esq. of Schuylkill County, Pa., has raised on his farm, of this beet, the enormous quantity of sixtytwo and a half tons the acre. We are assured by others who are growing the seed, which has been imported and distributed through the country by the "Beet Sugar Society" that they are in expectancy of producing a yield equal to the above.

A premium crop of mangel wurtzel for which Messrs Tristram and Henry Little of Newbury, Mass. obtained twenty dollars from the Massachusetts Society for Promoting Agriculture was 33 tons 10 cwt. and 14 lbs. See N. E. Farmer, Vol. III. p. 212. Col. Powel inclosed certificates to the President of the Pennsylvania Agricultural Society, showing that sixteen hundred and thirtyfour bushels of mangel wurtzel, weighing seventyeight thousand four hundred and fortyeight pounds were produced on one acre and fourteen perches; and a part of the same field, containing thirteen contiguous rows, produced at the rate of two thousand and sixtyfive bushels per acre, weighing fortyfour tons five hundred and twentyseven pounds.

The foregoing crops were of mangel wurtzel, which is sometimes confounded with the sugar beet. They are, however, materially different, the sugar beet, though it grows to about the same size with the mangel wurtzel, is of greater specific gravity, or heavier in proportion to its size, and contains much more saccharine matter. A writer for the New England Farmer, with the signature A. B., Vol. VIII. p. 222, prefers the Sugar Beet to the Mangel Wurtzel, and recommends it as "affording a beautiful crop of large sound roots, which if not so large as the mangel wurtzel, I think are heavier and will keep better. Their use as food for my cows has produced a decided improvement in the quality of their milk, which has been perceptible to all my family, in two days after I began to feed them out to my cows."

Thus we see that the Sugar Beet, considered as an article for feeding domestic animals, without regard to obtaining sugar from it, is one of the best products to which cultivators can turn their attention The manufacturing of this root into sugar is not a farmer's business, but should, at least for the present, be left to the manufacturing capitalist, who can command money as well as information, and afford to patronize the farmer liberally by purchasing the products of his cultivation. The time may come, and we hope it will shortly arrive, in which every farmer will be able to make his own sugar from beets with so little trouble and expense that it will become as common as the making of apple sauce, or the salting of beef or pork for winter's use.

AN ELEGANT ARTICLE.— A gentleman of Nantucket has presented the Editor of the New England Farmer with a SILKEN HANDKERCHIEF, manufactured in that Island and printed with fine colors in Lynn This is a beautiful specimen of American ingenuity; and a proof positive that we have only to set earnestly about fabricating our own Silks to make ourselves independent of foreigners to whom we have paid and are paying a greater tribute for this kind of precious merchandize than becomes a great, free, ingenious and industrious community. We should be delighted to exhibit our fine pocket ornament to any ladies or gentlemen who will do us the honor to call and look at it.

THE SEASON.—The weather during the past season for the most part has been absolutely *savage*. We learn that in many places last Saturday morning, frost covered vegetation as with a white mantle, though no serious damage was one thereto. English grain, we are told, is very good —wheat in particular. But corn, alas and alack! unless we have more "genial skies" and breezes from "the sweet south west," will be nearly, if not wholly cut off. Potatoes are said to be unusually good and the crop abundant.—*Brattleborough Vt. Phœnix.*

INDIAN CORN.

There is another question of interest to farmers, which relates to the mode of harvesting the crop, that is, whether it is best to top the stalks, cut the whole at the ground when the grain is glazed, or cut the whole when the grain is fully ripened. We have stated the experiments of Mr Clark of Northampton, one of the best practical farmers of our country, and of other gentlemen showing that the grain suffers a diminution of six or eight bushels the acre, by topping the stalks; and there seems to be no counterbalancing benefit in the fodder, unless at the expense of carrying the stalks to the borders of the field, that they may be secured before the crop is gathered, and before they become blanched and half ruined. And it is no protection against early autumnal frosts, but rather exposes unripened grain to be more injured. Hence, so far as regards these two modes, all who have made a comparison, seem to concur in the opinion, that stripping the corn of its tops and leaves is a bad practice. William Carmichael, of Virginia, has given us in the Farmer's Register, his experiments in this matter, which go to corroborate the conclusion we have drawn. He took, promiscuously, 100 ears from corn that had been topped, and 100 ears from that which had not been topped, growing side by side. The first weighed on the cob, 50 lbs.— shelled, 41 lbs., and measured 21 qts. 1 pt. The other 54 lbs.— shelled, 46 lbs., and measured 26 qts.— showing a difference of nearly one-fifth in favor of unstripped or untopped corn.— The fact is, that topping not only prevents the further elaboration of the sap, which can only take place in the leaves, and which is necessary for the growth of the corn, but it deprives the grain of much that is already elaborated, and on its way to the grain. If a fruit tree is deprived of its leaves, before the fruit has attained its growth, or mature flavor, for its supply of elaborate food, or vegetable blood is cut off by the loss of leaves. We have noticed this particularly in the plum.

Satisfactory experiments have not been made to determine whether it is most advantageous to cut the crop when the grain is merely glazed, or to wait till it is perfectly ripe. This will depend upon the amount of loss, if any, in the grain by early harvesting,— the relative value of the grain and fodder, and the prospects of both being injured by early frosts — for neither are liable to suffer from frost after the crop has been cut and put into shooks. It is to be noticed that in early ting, the stalks are succulent, and abound in elaborate sap, on its descent from the leaves to the grain and that this supply of food to the grain continues to flow probably for some days after the corn is in the shook, and if so the grain itself continues to improve, though we think it likely that the crop undergoes some trifling diminution. But if frost is likely to intervene before the complete maturity of the crop, there is no doubt but the corn will suffer less in shook than it will standing, while the fodder will be materially ujured by frost. Admitting that there is a small loss in grain by early cutting, though it is undoubtedly less than when it is topped, the difference in the value of the fodder, under the two modes of management, is vastly in favor of early harvesting. We do not pretend to calculate to a nicety the difference in nutritious properties, of cornstalks cut in a succulent state, early in September, well cured, and well housed, and those left standing till October or November in the field, but we should think it fifty per cent. Well cured cornstalks afford an excellent winter food for neat cattle; and when fodder is likely to be in demand, they may be made to contribute largely to the profits of the farm.— Several of our acquaintance have kept their neat stock almost entirely upon this fodder during the past winter, and we have done the like, having first cut ours in a cutting machine; and so far as we can learn, the cattle kept upon them are in excellent condition.— *Cultivator.*

Chickens.— A disease called the gapes, so destructive among chickens, may be prevented, and if not too far advanced, cured by a slight mixture of assafœtida in their food. Four ounces costing six and a quarter cents per ounce, dissolved in water and mixed once a day in food, is enough for four hundred chickens. If people have no sympathy for the sufferings of those beautiful little birds, they can't fail to have some for themselves, if beacon gets much higher.

Rossie Lead Mines.— The Ogdensburg Times remarks in relation to this newly discovered mine, that the vein, which had been but partially opened, increases largely in width as well as in purity, the farther it goes down. There is every reason to suppose that it is absolutely inexhaustible. The specimens of the latest excavations, it is said, will yield ninety per cent.— *N. Y. Com. Adv.*

The Treasury Building and Patent Office. — An act was passed at the recent session of the N. Legislature providing for the buildings for the accommodation of the Treasury Department and Patent Office. "Both these buildings," says the Globe, "have been commenced with great spirit, and the progress already made upon them reflects great credit upon those under whose general direction they have been placed by the President, as well as upon the several individuals employed to carry into execution the plans which were so promptly and energetically adopted.